

TAIG
You're it!!

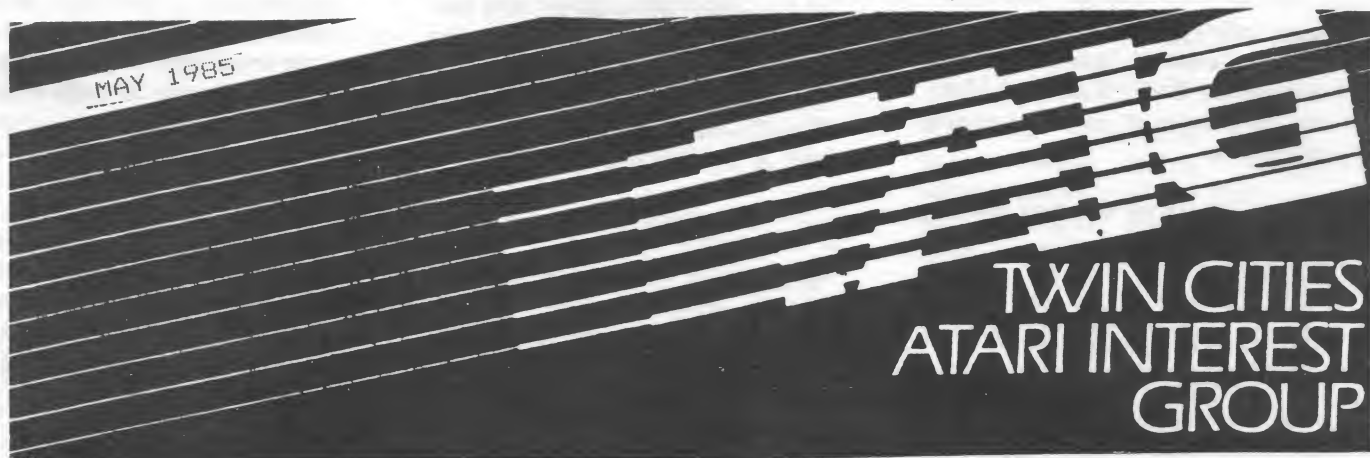
TAIG
You're it!!

!!TAIG CANCELED!!
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You're it!!

THE MAY TAIG MEETING HAS BEEN CANCELED, BECAUSE OF THE
MEMORIAL DAY WEEKEND. NEXT MEETING, JUNE 30.



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TAIG

Twin Cities Atari Interest Group
684 Queen Avenue South
Richfield, MN 55423



Next TAIG meeting:
Sunday JUNE 30, 1985
TAIG 7:00 p.m.
at
St. Louis Park Rec. Center
5005 West 36th Street
St. Louis Park, MN.

ELECTIONS WILL BE HELD IN JUNE.

Next NAGS Meeting:
Wednesday JUNE 19, 1985
NAGS 6:30 p.m.
at
User Friendly Computers,
8465 Plaza Blvd.
Spring Lake Park, MN.

ATARI and MIDI

by NAT FRIEDLAND, Antic Editor

Some truly phenomenal new musical peripherals for our favorite personal computer are about to make the Atari the new champion of computer-assisted musicmaking.

In this article you will read about:

- * A software and "black-box" product that lets your Atari emulate an advanced 16-track digital recording studio.

- * A remarkably powerful new MIDI synthesizer that sells for no more than what an Atari disk drive used to cost.

- * A new kind of "music generator" software that lets you compose and improvise in real-time at the Atari keyboard. The four-voice sound is tracked by colorful geometric graphics. Press a couple of Atari keys and you'll feel like the next Brian Eno.

1. MIDITRACK II

MIDITRACK II has been mowing them at computer shows and musical instrument shows since last fall. It's available at various professional-music stores around the country or by mail from the manufacturer for \$349.

MIDITRACK II disk software and the included MIDIMATE interface box work with any Atari that has 48K memory. The Atari itself does not produce any sounds with its POKEY chip here. It simply acts as the controller for up to 16 channels of information transmitted by MIDI instruments.

WHAT'S MIDI

MIDI stands for Musical Instrument Digital Interface. It's a set of electronic standards -- just as ASCII, RS-232 and Parallel Centronics are standards -- that allows electronic musical instruments to coordinate and exchange digitally encoded sound information.

Normally the way you'd operate a MIDITRACK II system is something like this: First you'd set up a drum pattern and record it on track 1. Next you'd adjust your synthesizer to sound like a bass and play an accompaniment onto track 2. With your "rhythm section" in place you could then start layering all sorts of interesting synthesized sounds on top to make melodies and harmonies in the rest of the available tracks.

STUDIO IN A BOX

Once you were finished, you would have a fully edited arrangement for MIDI instruments which you could then record on tape for combination with vocals or non-MIDI instruments. The length of the music you could save would depend somewhat on how many notes were in the piece. The limit per file is 3,000 sequenced notes.

By the way, usually you can simultaneously call up more than one track from a single MIDI instrument. Many synthesizers could give you as much as 8 simultaneous tracks.

MIDITRACK II is designed to operate like a professional multitrack tape recorder. So it contains all the features you would normally expect to find in a recording studio. All 16 tracks are independent unless you mix them together. You can synchronize tracks or change the speed of the entire recording. You can overdub or transpose tracks. You can automatically locate any spot on the recording. You can "punch in" anywhere to record difficult passages one note at a time.

MIDITRACK II even supports the advanced technique of quantization, or autocorrect. For example, if your timing was a bit uneven when you were trying to play that flashy bass part you could set the notes to automatically come out on the beat.

2. CASIO CZ-101

Most Atari owners who buy MIDITRACK II will probably decide to use the new Casio CZ-101 synthesizer as their primary keyboard. That's because the CZ-101 sells for about one-fourth the price of any comparable synthesizer! It lists for \$499 but has been on sale

at Macy's for as low as \$300.

We swiftly discovered that the CZ-101 is considerably more than merely a stripped-down version of the DX7. In fact, this Casio could almost be considered the Atari ST of synthesizers -- it delivers far more "power without the price" than anything else in its class. Despite the Casio brandname we are talking about a real synthesizer here, not an "electronic music-maker" with one-key chords and preset drum-bass patterns. (It doesn't have a built-in speaker either.)

In many ways the CZ-101 is even more versatile than earlier, more costly synthesizers. A review in the March, 1985 issue of "Keyboard," the top magazine for electronic keyboard players, concludes, "The CZ-101 makes good use of the latest digital technology. Its attractive features include seven excellent envelope generators, good-sounding waveforms, and several doubling modes for building up complex timbres. As an inexpensive and versatile MIDI slave module, it could be a very effective addition to almost any stack."

Upon translation from synthesizer jargon, what this means is that the CZ-101's strongest point is its wide-ranging capability of creating and manipulating synthesized sounds. It has more waveforms, envelopes, oscillators and more ways to combine these soundmaking elements than most previous synthesizers.

In this instrument you'll find a full assortment of standard high-end synthesizer features such as pitch-bend wheel, ring modulator, portamento, octave shift, detune control, phase distortion sound generator.

16 INSTRUMENTS

The CZ-101 starts you off with 32 factory-preset sounds -- flute, electric piano, violins, organ, etc. -- that range from okay to pretty good. You can reprogram 16 of these sound "patches" to hold your own sound creations (you can bring back the factory patches anytime). Also there's a slot for additional 16-patch programmable cartridges.

People who play piano by ear and can

only play in one key (usually either all white notes or all black notes) will deeply appreciate the transpose button that will instantly shift you into even the most complex key (four flats, five sharps, etc.).

And you can dramatically change the synthesizer voicings during playback and hear your new sounds in real time. Or if you tinker with the playback of the demonstration songs provided with MIDITRACK II you can try out sounds as unique as a Mozart Sonata being played on a vibraphone or jazz organ.

3. VIRTUOSO

At a music studio in Queens, New York last year you'd find three kids at a time sitting in front of Atari computers and listening on earphones while geometric patterns of color flashed across the video screen. These kids were taking two-hour lessons in creating music on the Virtuoso sound generator and when the sessions were over their parents often had to drag them away from the machines.

Virtuoso is such a unique new approach to musicmaking that it's not easy to describe. Virtuoso gives you a user-friendly method of tapping the extremely fast and powerful changes that a computer can control in every aspect of music performance.

It bypasses the limits of traditional musical notation and uses an almost self-explanatory color graphic display that delivers mathematical insights into the structure of music.

USING VIRTUOSO

You'd enter a musical pattern into Virtuoso from the Atari keyboard, or call up one from about 480 that could be stored on a single disk. The pattern would start sounding and the lines of colors would trace it visually. At this point you could start creating all sorts of changes in the pattern -- which you would hear and see immediately.

As the pattern was playing, you could change its speed, rhythm, pitch, tone, volume, key scale, etc. You could enter new patterns any time.

There's even a Future mode where you can enter changes before they are due to be played. The effect of controlling so much musical power so effortlessly feels something like conducting an orchestra at the same time as you are composing the music that it plays.

In technical terms, Virtuoso is a sound generator that produces four voices from the POKEY chip. You can make instant real-time changes in the voices in any of six parameters. Four computers running Virtuoso can be linked together to have up to 16 independent channels controlled by one Atari.

At this point, Virtuoso is to be on disk, available for either the Atari or the Commodore 64, and priced at about \$50. It is to be out by August.

Not only that, a \$150 MIDI interface for Virtuoso is also being readied for August release. Virtuoso will therefore be usable as a visual language for MIDI controllers -- not only for music, but also for lighting and sound effects, lasers, etc.

PLEASE NOTE that Virtuoso is a product that is still under development and has not yet been released at this writing. Antic will print more news of Virtuoso as soon as it becomes available, so please do not phone or write us asking where to get it yet.

Atari BBS's (Or other systems with Atari Rooms)

TAIG/SPACE	544-9058
Deep Thot	938-7535
The Barn	521-5398
1985 (MCMLXXXV)	729-1985
The Doghouse	432-7668
Zandor, Tucson AZ	602-326-1186
Mace, MI	313-544-0885

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ATARI MEETS BCS USER GROUP - 3/27/85 EAST COAST UNVEILING OF 520ST

By Brian Oliva, SysOp, No. Shore AMIS

BOSTON, MA --The Boston Computer Society General Meeting tonight featured Leonard Tramiel of Atari, as well as Digital Research's Bruce Cohen, and Bill Bowman from Spinnaker, and marked the east coast unveiling of the new 520ST Computer. The meeting filled Boston's New England Life Hall to capacity.

The meeting was kicked off with opening statements from BCS President Jonathan Rotenberg who indicated that he had received numerous complaints after the distribution of the newsletter announcing that the "incredible Atari ST" would be shown at the meeting. Further investigation indicated that the complaints were all coming from people who had just purchased MAC's! A show of hands later in the meeting confirmed that the vast majority of the people in attendance were IBM-PC and MAC owners. It was evident that the new ST's are making waves and getting attention. I think that's a good sign!

Tramiel reiterated the specifications mentioned in previous reports. I won't repeat any more than I have to. It appears that Atari is still on schedule and is still predicting release of the new machines in late April.

When asked what Atari's priorities were on good software, Tramiel replied, "Good software is all we're planning to put out." He went on to explain that many developers were working with the machines, and software would be available at or soon after the computer's release date.

Tramiel was asked where the machines would go upon their release (geographic distribution) and replied that they would sell them to any one who would buy them. He avoided any answers regarding marketing strategy in general, and would not identify any

potential retail outlets.

Unfortunately, Mr. Tramiel did not have a formal demo package available with him, so the actual demonstration of the machine was exceptionally weak, but Tramiel's enthusiasm, as well as the comments from the other guest speakers, left a good feeling with the dedicated Atarians.

Tramiel described that the versatility of the ST's was enhanced by the multiple ports which include:

- 128K ROM slot
- Hard Disk DMA Port (10 Megabit/Sec!)
- Floppy Disk Port (Daisy Chain)
- Standard RS232C Port
- Centronics Printer Port
- Monitor Output
- RF (TV) Output
- (2) MIDI Ports (Musical Instrument Digital Interface, In/Out)
- Joystick Port
- Joystick/Mouse Port

Bruce Cohen, from DRI explained the GEM operating system in detail, including how it was being developed in other applications. He indicated that the IBM PC would have a GEM system available in April.

The most positive statements of confidence in the new Atari came from Spinnakers Bill Bowman. He was bubbling with enthusiasm and projected that this was the onset of "new beginnings" for the Home Computer Market." He explained that until now, computers didn't serve the home market. They were difficult to use, or were very expensive, and most people didn't NEED personal computers. He stated that the Atari ST's broke all these barriers and was the first exciting thing to happen in the Home Computer industry in over 3 years. Now, programmers had the ROOM to write easy to use programs at a reasonable price. He explained that until now, software developers in the home computer market were limited to 8K ROM, 64K maximum environments. Simply put, the ST=Freedom!

Bowman indicated that Spinnaker would continue to support and expand their line for the Atari systems. He said that the first programs to be developed for the ST's by them would probably be adventure games, following later on with Educational and "Productivity" Software in time for

Christmas. He said most software would be in the \$49-\$59 range, and was looking forward to "seeing the new beginning with the Atari ST's."

SERVICE & TROUBLESHOOTING

by Wayne Tyrrell

I'm starting a series of articles on computer service and troubleshooting. I decided to devote the first one to buying a computer. A lot of major problems start before the computer is even out of the box.

We sometimes forget that a computer is simply a tool. It can be used to entertain us, educate our children, or manage our business and finances. One of the biggest let downs a new computer owner may find, is that he purchased the wrong machine.

To pick out a good computer, first decide what you want it to do. Then go to a local computer store and ask the salesman to demonstrate several types of software which might do the job. Once you've determined what software to buy, it's time to find out what computers it will run on.

The salesman may suggest several computers that could do the job, but others may also be compatible with the software. You could write a letter to the manufacturer of the software and ask for list of computers that run their programs.

The last step is deciding which computer to buy. Choose a machine that's reliable, easy to use, and you're comfortable with. However, it's possible that no computer will do the job. In this case, you may have just saved yourself the trouble of finding this out the hard way.

When someone asks us to recommend a good computer, we should first consider their computing needs. Ask yourself if it's really the right computer for them. If it is, then we can recommend that they consider an Atari. If it's not, they would probably be disappointed with the Atari, and this could only hurt our efforts to promote it. If we make our recommendations wisely, the only Atari owners will be happy ones.

OUTPUT

by Oknanez Retep

If any of you are wondering what the power consumption of your computer hardware is, than read on.

The idle current of four power supplies (with all equipment shut off) is 8 watts. (i.e. 1-800 computer, 2-disc drives, 1-850 interface module)

My Rana 1000 disc drive draws 12 watts with the motor running, and 7 watts at idle. The Indus GT draws 22 watts running, and 13 watts at idle.

The Atari 850 interface module draws 2 watts, and my 800 computer draws 12. An Epson RX-80 draws 27-35 watts running, and 12 watts at idle.

If you tally it all up, when your using your computer, one disc drive, the interface mod, and a printer--your using 60-70 watts plus whatever a television requires.

The Work Shop
by Cory Johnson

I would like to make this a monthly column, unfortunately (or fortunately, depending on your view) I don't receive how to's for hardware modifications often. As a result, this column will be rather sporadic. If you have made any modifications to your computer or related equipment, and would like to share your improvements with the group, drop me a line at 473-4190, or send a hardcopy, or disk with your article on, and any schematics involved to Cory Johnson 1835 Shadyview Circle, Plymouth MN 55447. I am also at most of the TAIG meetings.

WARNING

I can't be responsible for the hardware modifications or problems you may have as a result of making these modifications, presented in this column. If you are not familiar with the innards of your Atari, DO NOT attempt ANY of these modifications. These modifications (or just opening it up) will void the warranty on your equipment.

WRITE PROTECTION DEFEAT FOR 810

Reprinted from ABLE AID, December, 1984.

This modification provides switch control to:

- Override the write protection on either side of a diskette (always write) regardless of whether the disk is notched or has a write protect tab.
- Always prevent writing to either side of the diskette (never write) irregardless of the notch or tab placement.
- The third option is normal write protection.

The parts needed for this modification are a double pole double throw center off toggle switch and wire. A pilot light or LED is optional.

Circuit modifications are shown to the 810 side board. (FIGURE A)

Bend the bottom pin of plug J101 80 degrees toward the front of the drive and wire the switch per schematic shown. If a warning indicator is desired for the "always write" condition then an LED is required. Appropriate voltage can be obtained between the top of C135 (next to the top LED on the side board) and the chassis ground.

is working o.k. So I began looking around for some sort of audio monitor that I could use. I first tried a small transistor radio, feeding the audio in directly to the volume control. This worked o.k. except that the radio had to be tuned to a spot where there was no station, plus it was very sensitive to interference and hum.

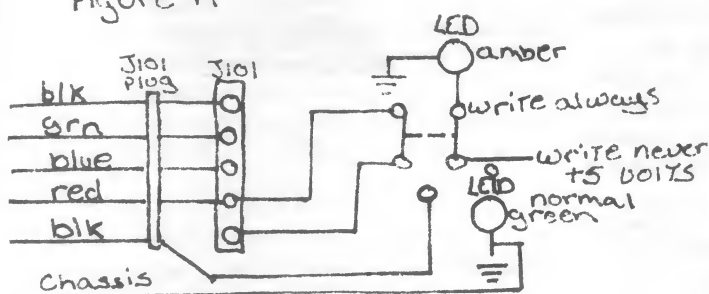
So I finally decided to build my own, the criteria being that the circuit had to be as simple and inexpensive as possible. After some research, I decided on the LM386 audio chip. In addition to being inexpensive (\$1.09 at Radio Shack (note: I checked it out, and they are still \$1.09 at the Golden Valley shopping center Radio Shack)), you can build the circuit with a minimum of 5 or 6 additional circuit components. The nominal 400 milliwatt output is adequate for this type of application and a low quiescent current drain of 4 milliamps makes it ideal for battery operation. The amplifier will operate on any voltage from 4 to 12 volts, so I used a 9 volt transistor battery to power my circuit. The first battery lasted 3 months and probably would have lasted longer if I hadn't forgot and left it on a couple of times.

Circuit construction is not critical; I used a small speaker

that came off an old TV set and mounted everything in a 3x4x5 aluminum box. You will need some miscellaneous hardware, such as a circuit board, DIP socket, switch, input jack, battery clip, etc., but most of this is readily available. Even if you bought everything, you should be able to put it together for less than \$10.00. Here is the circuit I used. (FIGURE B)

The gain of the LM386 is internally set at 20 but two pins are provided for gain control. (Pins 1 and 8). If a capacitor is put from pin 1 to 8, bypassing the internal gain resistor, the gain will go up to 200. If a resistor is placed in series with this capacitor, the gain can be set at any value between 20 and 200. I found that I didn't need the extra gain so I didn't use pins 1 and 8. If you don't like battery operation, you may want to add a power supply, using a small filament transformer and a rectifier. Or you may be able to find 5 volts inside your monitor and use that. I had originally intended to build the circuit into the back of my monitor, but when I called Leading Edge to see about getting the schematic for my Gorilla monitor, all I could get from them was "schematic is not available." (They didn't say it didn't exist, they just said it wasn't available!)

Figure A



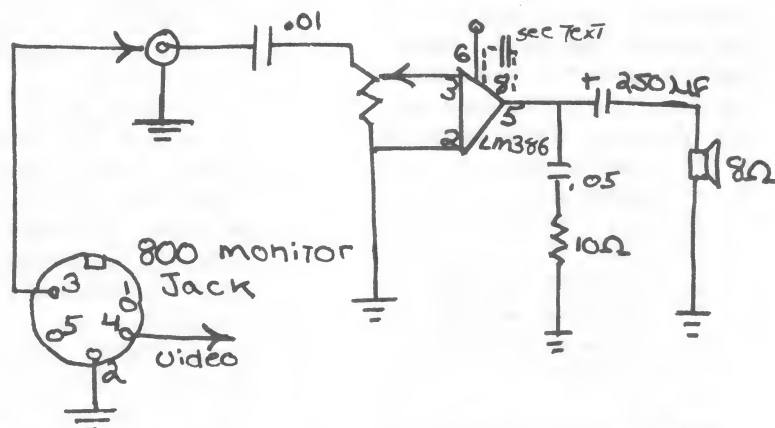
AUDIO FOR YOUR MONITOR

by H. Blevins

Reprinted from THE I/O CONNECTOR, October, 1984.

I recently added a small monochrome monitor to my Atari 800 computer setup, which comes in handy when I want to use the computer and the rest of the family wants to watch TV. Most of the small inexpensive monitors don't have audio and I found that I sort of missed the reassuring beeps and clicks that tell me when everything

Figure B



Don't miss the Amateur fair '85. A Electronics & computer show and swap at the Minnesota State Fairgrounds in the Dairy Products Building, Sat June 1st. For more information see the Computer User or use your modem and call 291-0567

Thank you for the many responses to our request for help with the BBS. We have chosen Cory Johnson, Dave Stengel (also our Newsletter Editors) and Jeff Gottstein, all who live close to Wizard's Work and should be able get to the board often.

By the way our BBS is currently on display at Wizard's Work come on in and watch the rest of us make fools of ourselves.

SOUND THE TRUMPETS

WE ARE NOW 1200 BAUD!!!

Thanks to many of our members who have purchased our disk of public domain software and Wizard's Work who gave us a good price, the club is now the proud owner of a SIGNALMAN EXPRESS 300/1200 baud modem. It has been functioning very well and sure cuts down the up/download time. By the way if your in the maS 300/1200 baud modem. It has been functioning very well and sure cuts down the up/download time. By the way if your in the market for a good 300 baud smart modem we have our old Hayes for sale (asking price \$130 requires 850 or Rverter).

This month's topic is Up and Downloading.

First a few definitions:

Downloading - Receiving from the BBS
Uploading - Sending to the BBS
XMODEM - A protocol for Up & Downloading to insure a clean transfer

The first thing you'll want to do before is find out what is available for downloading. This is done with option "F" (Files) which will then prompt you for the type of program which you are interested in.

- C - Communications
- D - Demos/Graphics
- G - Games
- M - Music
- N - New submitted uploads
- P - Applications software
- T - Text and Documentation
- U - Utilities
- A - All

After deciding which File you are interested in use should set up your computer to receive the file. This will differ a little from Modem program to program but the following will work for most XMODEM transfers:

1. Press the SELECT Key to get to

your function Menu.

2. Press "R" for Receive XMODEM.

3. Enter the File name you wish to use to save the member being transferred.

4. Normally you will automatically be return to the BBS at this point. If not Press RETURN or follow directions.

5. You should now use Option "D" to download the file of your choice. After entering "D" you will be prompted for the file name or you may enter "D filename".

6. You will then be prompted with "Are you using Xmodem protocol" which you should respond with "Y". Note Downloading with Capture is permitted however you may run into problems later since no checking is done.

7. You will then be prompted with "Xmodem Ready--Begin Send". Wait a couple of seconds and then Press START. If all is right you will see the file as it is transferred.

8. After the transfer is complete your computer will save the File to Disk.

Uploading of course is just the reverse of Downloading. You go to your Menu and select "S" Send Xmodem and chose the file which to sent.

Be sure to note the size of the file to be sent as the BBS will ask for it to determine if enough space is available. The rest is just like receiving.

By the way if you want to know if you program is capable of receiving a file of a certain size try loading a like size file with the Send option. If it is incapable of sending it, it will be incapable of receiving it.

Currently any file uploaded to the board is flaged as New, but I plan to change that so the file information is entered at time of uploading. In the mean time we will appreciate if you leave information in the UP-DOWNLOAD INFO board about your Upload.

Do you have call waiting? Are you tired of getting knocked off, every time your on the modem? Well there is a solution.

KILL CALL WAITING! by Laura Clements
(reprinted from the Crossroads Commodore User Group's newsletter)

For computer users trying to use a modem on a telephone line with

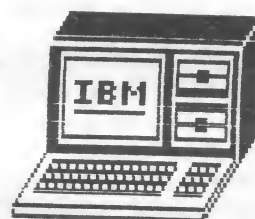
call waiting, there aren't many solutions to the problems caused by incoming calls.

Page 68 of the TELELEARNING MODEM USER'S MANUAL seems to have the answer. After loading the terminal program of your choice, pick up your phone and dial 9. Click the switchhook to receive the dial tone of your second line.

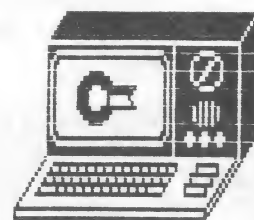
At this point, you can switch your modem's dial/talk switch to 'dial', hang up the receiver, and use the program's autodial feature. If your modem isn't capable of autodial, instead of hanging up the phone, dial the BBS number you wish to call. When the second dial tone is received, follow the normal procedure for your modem call.

In either case, anyone now calling will get a busy signal, and your connection cannot be interrupted by an incoming call.

IT'S NOT HOW
MUCH YOU
PAY...



IT'S HOW
MUCH
PLASTIC
YOU GET.



Beginners' BASICS #1

by Bob Floyd

I'm going to try to write this column for a while. I hope others will help out as guest columnists. What makes me somewhat qualified is that I receive a lot of phone calls for advice from new owners due to my name and number being listed in the Computer User. (Most of these people only feign interest in the club so they can get a hot tip. But, I do get those genuinely interested in the club as well. I can usually tell one from the other and make a special effort for those deserving.) So, I know a lot of the questions beginners ask. My other qualification is that I, too, was once a beginner. I had background in FORTRAN on a mainframe, but a personal computer was a whole new experience. I bet everyone out there was once a beginner - if not, please let me know how you became an expert overnight. Better yet, write a guest column.

First of all, most beginners try to type a program in from some listing they obtained. The program is unlikely to work as written, unless it was written for an ATARI. This is because there is no true BASIC standard used in personal computers. There are lots of "dialects" of BASIC. Also, almost none of the personal computers to date are compatible with one another. So even if they used the same dialect of BASIC, the program probably would still not run. So, be sure your program came from a magazine or book for ATARI.

Second, most beginners don't realize what the SYSTEM RESET key does. While in BASIC, the RESET will recover from most lockups (i.e., "dead" keyboard), endless loops, etc., without erasing the program. Try typing "LIST" after a RESET and see that the program is unchanged. You have to be a fairly advanced programmer in order to do something that a RESET won't recover from. Also, if you delete a lot of lines, a bug in the operating system could wipe you out. So, be sure to save your program frequently when entering or modifying. Also, it is more

aesthetically pleasing to use the "BREAK" key before resorting to the RESET.

The third most frequent topic is printers. If you are going to buy a printer, be sure to buy a big seller or one that is compatible with a big seller. The printer most commonly used with ATARI is the Epson series. Another is the C. Itoh Prowriter. Both are excellent printers. I bought a NEC 8023A/C. It was designed in a joint effort with C. Itoh and so shares the same control codes. I like this printer due to its superior speed, excellent print quality, print versatility, and because it comes with a unique friction and tractor feed design that doesn't waste a sheet of paper every time you want to remove a printout. If you don't buy an Epson, C. Itoh or NEC, be sure yours is a big seller or compatible with one of the three I've listed. Being compatible means that the codes the computer sends to the printer to control such things as underlining, boldfacing, italics printing, etc. are the same as for a popular printer. Many people have purchased Gemini Star printers. They are compatible with Epson (almost totally) and others. Now, I'm finally getting to the point. Almost all printers will work on ATARI computers for the most part. However, software such as word processors do not support all printers' control codes. Programs such as ATARIWRITER, probably the most common word processor for the ATARI, support "printer drivers" for various common printers. A printer driver is a set of printer control codes that tell the program how to control the printer properly. Unless you are an expert, you won't be able to write your own printer driver. So, having a common printer can save you a lot of trouble in the long run.

Fourthly, most printers require an interface device. All of the common printers require an interface. Be sure your printer has a Centronics type parallel connection in order to work with the interface. (Some printers can be connected directly to the serial port of your ATARI and require no interface - the serial port is the same port as the one you connect to the disk drive or cassette. Daisy chaining allows you to connect all of these items at once.). You

will have the least trouble if you buy an ATARI 850, but this is fairly expensive and hard to find. Many people use the APE-FACE with good luck, although I've heard there's a bug in early versions. MPP also makes an interface, plus some disk drives come with a printer interface. Two serial connections are also important to have on an interface if you plan to expand your system. For example, if you plan to use both the 410 cassette recorder and a printer at the same time, then you had better have a two serial port interface. That's all for this time. If someone can tell me how to use the XL translator disk, I'll describe that in next month's column. Also, I'll cover the commands SAVE, LOAD, LIST and ENTER and their differences, plus a little on DOS.

Beginners' BASICS #2

by Bob Floyd

Well, here's the second installment of Beginners' BASICS and I still don't know much about using the translator disk because I have an 800 and don't need a translator. So, I won't be able to say much about it as promised. (Perhaps someone else can cover exactly how to use the translator disk for cartridges and disks.) What I do know is why a translator disk became necessary. Way back in the early days, ATARI opened up their operating system so that software developers could write programs more easily. ATARI warned them which locations (i.e., machine language subroutines - using these saves on program size and development time) were safe and which weren't. The "unsafe" locations were subject to change on future ATARI computers. This warning went unheeded by many software developers and some wrote software based on unsafe locations. So, there should have been no surprise when the new XL computers were not compatible with all non-XL software. Instead, ATARI ended up taking most of the blame for the incompatibility. All of the recent software is compatible with all ATARI computers, so most of you probably have no need for a translator disk. Since the

translator uses 16K to simulate the old operating system, you must have more than 16K to use it. So, a 16K 600XL would not be able to use the translator disk because there would be no memory leftover for the program. Also, there is no translator available on cassette. You can purchase a translator disk from Bruce Haug, the disk librarian, for only \$4.00.

SAVE and LOAD are used for transferring programs between the computer and storage device. Storage can be on disk or cassette, but for now let's assume disk. To save a BASIC program, type:

```
SAVE "D:FILENAME.EXT"
```

This saves your program on disk drive #1, since the D: refers to the default drive, which is #1. FILENAME refers to a 1 to 8 character combination of

letters and numbers with the first character being a letter. The .EXT is optional. It is known as an extender. Typically people use extenders like .BAS for BASIC programs, .OBJ for objective files (machine language), .LST for LIST files (see next few paragraphs) and .TXT for text files (as in word processing). The extender may be 1 to 3 characters in any combination of letters and numbers. The second quotation mark is optional. To retrieve your BASIC program from the disk, type:

```
LOAD "D:FILENAME.EXT"
```

The program will be loaded back into computer memory.

You can then LIST the program. To see it on the screen, simply type LIST or L., which is an abbreviation for LIST. This will list the whole program. To list only a portion of the program, type:

```
LIST 135,225 or  
L. 400
```

The first statement will list lines 135 through 225. The second will list line 400 only. LIST is also used for listing to the printer. Simply type:

```
LIST "P:" or  
L. "P:",135,225
```

The first statement lists everything to the printer, whereas the second statement lists only lines 135 through 225 to the printer. The printer is known as device "P:" and is accessed as shown above. The printer cannot handle ATARI graphic characters properly, so the output may be erratic if graphic characters are used in the program. There are some commercial programs available that will list programs with all the correct looking characters to a graphics type printer like NEC or Epson. I have written a program of this type that will be available on SPACE's March disk of the month.

The cassette, disk drive, and RS-232 ports can also be used this way with the LIST command. Of these, I will only cover LIST-ing to the disk drive, since that is fairly useful. The command would be:

```
LIST "D:FILENAME.EXT" or  
L. "D:FILENAME.EXT",400
```

The first statement lists the whole program to disk under the name FILENAME.EXT. The second statement lists only line 400 to that name on the disk. The ENTER command can be used to retrieve a program LIST-ed to disk as follows:

```
ENTER "D:FILENAME.EXT"
```

The whole program from the disk will be ENTER-ed.

And now, finally down to the heart of the issue. Why should we bother to LIST to a disk when we can SAVE? To answer this takes a little more information. Programs are stored in the computer in "tokenized" form. This means that the program, as you see it, does not reside in memory. Only a representation of the program is there. This saves memory and improves program speed. The LIST command exists for our convenience so that we can view our program. In other words, LIST translates the tokens back into a form we can understand. Tokens are not the same as machine language. They are just codes for things like addition, subtraction, various functions like absolute value, program variables, etc. The computer can recognize the difference between programs stored in LIST format versus SAVE format. You

will get an error message if you mix up LOAD with ENTER.

LIST files are useful for transferring to other files such as word processors, bulletin boards, etc. because they are readable. That is, they are in ASCII (or ATASCII-ATARI ASCII) form, which is universal. LIST files are also useful for merging with existing programs. For instance, if I wrote a program that uses a NEC printer, it probably would not work on an Epson. The simplest way to handle revisions for other printers would be to leave the original program intact and write a bunch of short programs (one for each printer) to merge with the original. A person could then LOAD the original program and then ENTER the appropriate correction program to merge with the original. This usually only takes a few program lines, with proper planning. It is not possible

to merge programs with the LOAD command. This is because LOAD erases any existing program in computer memory before LOAD-ing. ENTER does not erase an existing program, but will replace existing lines if new ones have the same line number.

I hope this has been helpful and not too confusing. If anything is unclear, please ask questions at the meeting. I ran out of room this month to cover DOS, so I will save that for next time.

ED NOTES

Another newsletter has come and gone, and we got the copy right date correct on this one. As you could probably see, we got print shop, and were playing around with it.

Much thanks to SPACE who gave us all the Compuserve articles, Bob Floyd's columns, and Wayne Tyrrell's article.

Dave Stengel is responsible for Commodore's new ad (p. 6).

The number for the NO BS BBS was removed because it has gone private to out of state callers, and another board is up, call The Crisis Room at 473-1623. By the way, if no area code is given, it is in the 612 exchange.

Elections will be held in JUNE, lets get those nominations rolling.